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THE WOODLOT: A PROBLEM FOR NEW ENGLAND FARMERS

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HOW to get from the land more of the materials that feed, clothe and shelter mankind is becoming more and more essential with the passage of time. The better use of the land is a basic problem in New England at the present time. The right solution of this problem will maintain her population in the highest degree of comfort, help determine her future greatness and give her the power that makes for endurance. New England's prestige can not rest upon manufacture alone. It must be rooted in the economic development of the land. Germany's position in the industries, developed almost entirely during the past half century, rests upon a firm foundation in land usage. More so than most other nations she has learned how to attain the maximum yield of agricultural and forest products and at the same time she has experienced wonderful industrial development. New England in her fight for industrial development has neglected the foundation upon which it ought to rest. Her land, instead of becoming more productive as years slip by, has become less productive. The acreage used in agriculture is much less than formerly, and the yield per acre astonishingly low when compared with Europe. Her yield of forest products is less than formerly and the quality much lower, due to the practical extinction of virgin forests, the want of adequate protection and the lack of reproductive and intelligent management of the second growth.

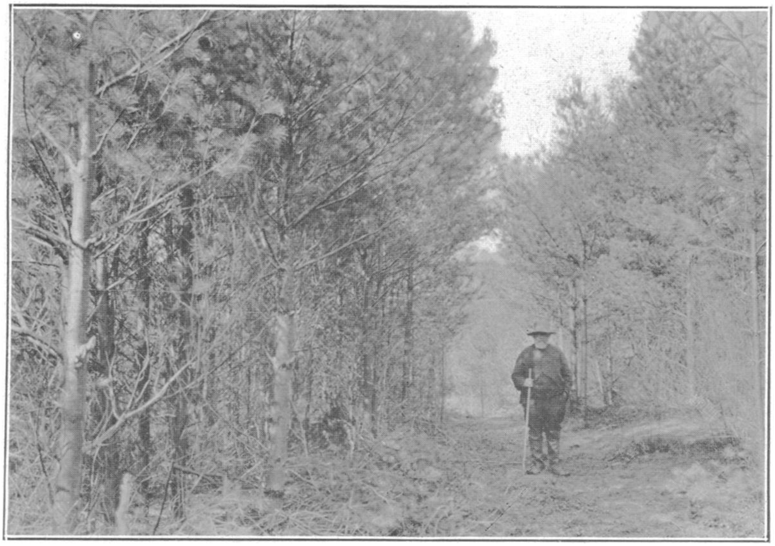
The best use of the land requires an adequate conception of what crops, be they agricultural or forest, each particular site is best suited for. Every acre of land unsuited for agriculture that is settled upon and cleared is an economic waste. Every acre of land suitable for agriculture that is left in forest

A 40–45-YEAR-OLD STAND OF NATURALLY REGENERATED WHITE PINE, near Keene, N. H., 10 years after an improvement, thinning which gave a yield of approximately 5 cords per acre, worth $5 per cord on the stump.

beyond the time when it can be profitably used for the production of farm crops is an economic waste. We who live in New England and are a part of the directing force in her development must clearly appreciate that the sixty-six and one half thousand square miles in the six New England states, all of which were covered with primeval forest at the time of the settlement of the country, consist of two more or less distinct classes of land, viz., agricultural land and absolute forest land. I mean by this that a certain part of the land, due to differences in climate and soil, is most useful and of the greatest economic value when developed for the permanent production of farm crops and another part, when developed for the permanent production of forest crops. Both of these classes of land ought to be developed in a manner progressively to increase the yield of the materials which feed, clothe and shelter mankind. More than 60 per cent. of the total area of New England is classed as forest and, in the opinion of many foresters, the climatic, topographic and soil conditions are such that at least 50 per cent. can be economically developed only when utilized for the production of timber. In other words, more than thirty thousand square miles of New England is absolute forest land—land upon which agriculture has no business, land that will wreck the fortunes of those who persist in utilizing it for purposes which the climatic and soil conditions make it wholly unfit.

How can these vast areas of absolute forest lands be wisely developed and, with the disappearance of the virgin forests, made to produce acceptable yields of second growth timber? Roughly speaking, they are either in large continuous areas in the non-agricultural regions, as in the White Mountains, or in more or less isolated fragments attached to farms in the agricultural regions. The former cover the large uplifts or northern regions of New England, and are largely confined to Maine, New Hampshire and Vermont. The latter are the New England woodlots, for the most part, on soils too poor or too rough for profitable agriculture. They are relatively abundant in Connecticut, Rhode Island and Massachusetts. How much of the absolute forest land in New England is in woodlots attached to farms we do not know. In Connecticut, Rhode Island and Massachusetts nearly all is in woodlots, in Maine a relatively small percentage. On a conservative basis the woodlots of New England include between 10 and 14 thousand square miles, owned in relatively small holdings. Woodlots, due to their comparatively small size, their separation from each other by tillable land, and the abundant, near-by population, should be easily protected from fire. Due to their nearness to market, the stumpage value of wood is usually high and the average quality of the forest soil is such that the yield should be large.

In recent years New England has made some progress in the



A 20-Year-Old Natural Stand of Pure White Pine, near Keene, N. H., 10 years after freeing from overstanding hardwoods, chiefly birch.

organization of her large continuous areas of forest in non-agricultural regions, particularly for fire protection. She has done relatively little in woodlot forestry.

The farmers of New England should appreciate the basic fact that their farms include both agricultural land and absolute forest land. It is just as much the business of the state to encourage the best use of the absolute forest land as it is to do this for the agricultural land. Agricultural colleges, agricultural high schools, farmers' institutes, agricultural experiment stations and country agricultural agencies maintained and supported by the public are a good thing for better agriculture, but they will never serve their full purpose in New England until they help the farmers to a better understanding of the woodlot. The use of the land means the use of absolute forest land, as well as the use of agricultural land; the development of both must go along together.

VIEW OF A 40–50-YEAR-OLD, UNTHINNED, PURE STAND OF WHITE PINE, near Keene, N. H., adjacent to an area recently clear cut, showing the refuse matter after the clear cutting with the larger limbs cut into cordwood.

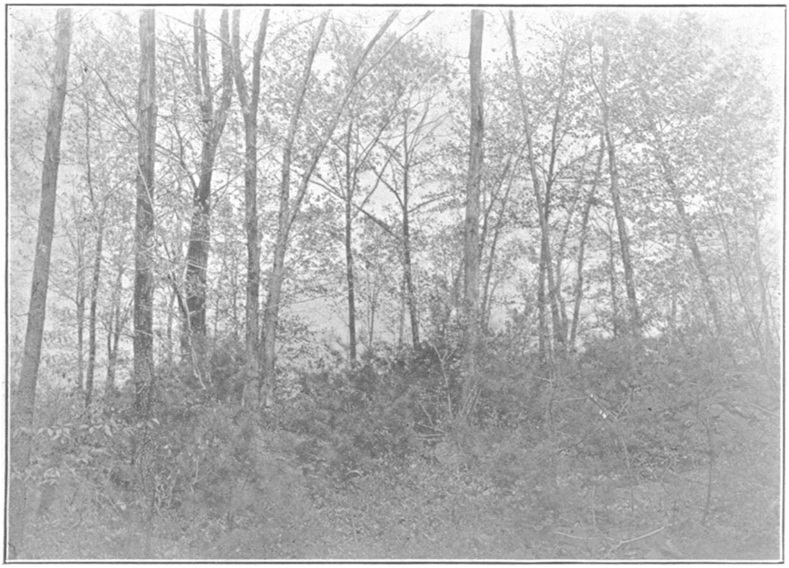
Agriculture is as old as the race. The farmer knows from long experience that the productiveness of tillable land is measured by the intelligence and labor combined in working it. Nowhere does he expect the grains, fruits and vegetables as a free gift of nature. If we reap we must sow is universally accepted as the foundation of husbandry. Forestry is comparatively new. The farmer is just beginning to learn that the productiveness of absolute forest land is also measured by the intelligence and labor combined in working it. He knows that the financial yield from 10 acres of tillable land may be as great as that from 100 acres of similar land under less intensive culture. He does not yet know that the financial yield from 10 acres of absolute forest land may be as great as that from 100 acres of the same quality of land less intensively managed. The financial yield per acre of both agricultural land and absolute forest land is chiefly a matter of the crop best suited to the site and of intelligent culture. If the farmer needs national and state aid in order to get the greatest use out of his agricultural land, how much more does he need such aid in order to get the greatest use out of his woodlot, which in New England is a very large part of almost every farm. The vast aggregate area of New England woodlots can not look to national, state, or community ownership or to public regulation for their improvement. Its possibility for future yield rests entirely with the individual private owner. The farmer does not appreciate the economic possibilities that lie dormant in his woodlot. Heretofore, in the utilization of the timber only the superior trees have been cut, the inferior species and those with crooked stems and other defects have been left. At intervals the wood-

THIRTY-YEAR-OLD WHITE PINE AT ENFIELD, CONN., regenerated by broadcast seeding on plowed land of first quality. After first thinning. Number of living trees per acre 767. Number of dead trees 1,004.

lot has been reentered, the exploiters always taking the best trees and leaving the culls. Where wood for fuel could be removed at a profit, the stand usually was clear-cut. In many instances the young growth has been destroyed and only in recent years have serious attempts been made to protect it from fire. As a result there has been a tremendous change in the abundance and frequency of the various species. Thus white pine has practically disappeared from many woodlots where formerly it was abundant; while ash, black cherry, walnut, basswood, tulip, all important elements in the primeval forest, are rapidly disappearing, and gray birch, red cedar, sumac, and similar species of little economic value have vastly increased in both frequency and abundance.

Since the settlement of New England we have been trusting to chance to reproduce our woodlots after exploitation and fires. Acceptable forest stands, however, can seldom be attained by chance any more than an acceptable crop of wheat or an acceptable crop of corn. Forest crops must be intelligently arranged for and the necessary work performed. Although the intelligent farmer does not harvest his crop of wheat one year and expect a volunteer crop the next, it is altogether likely that he will harvest his woodlot and leave it to chance to reestablish a stand upon it. Practically no virgin timber remains in New England woodlots. They are nearly all second growth. Some have been cut over many times dur-

WHITE PINE PLANTATION, 26 years old, spaced 6 x 6 feet, after the first thinning. Greenfield Hill, Conn.



WHITE PINE PLANTED UNDER HARDWOODS, near New Haven, Conn. Now in condition for the removal of the hardwoods.

ing the past two and a half centuries, others still retain worthless elements of the primeval stand. They are extremely variable in the character of the stand and in the density of stocking. In species, they vary from the highly valuable white pine to the almost worthless gray birch. The stands are for the most part irregular, open or fragmentary. They are producing but a small fraction of the usable materials that the land is capable of growing.

New Haven County, Connecticut, has, I believe, a fair average of the woodlots of New England. Their treatment has been on the whole no better or no worse than that accorded woodlots elsewhere. The productive power of the woodlots of this county under two and a half centuries of culling and clear-cutting without the intelligent arrangement for an acceptable second growth has been reduced to the point where the average annual cut from the 184,126 acres is but little more than one half a cord of mostly inferior wood per acre. Although close to an excellent market, the average annual financial yield is considerably less than $1 per acre. Against this yield must be charged taxes, interest charges and the cost of protection. The present average income from the second-growth stands in New Haven county is so low that the farmer is losing money upon them. In other words, the average annual income derived from the 184,126 acres in New Haven county woodlots is so low that it will not pay the carrying charges for interest on the market value of the land, the taxes and the cost of protection. In many instances, due to the poor quality of the soil and its deterioration through mismanagement, there is no useful growth whatever, the land is absolutely idle and the unfortunate owner must necessarily experience an annual loss.

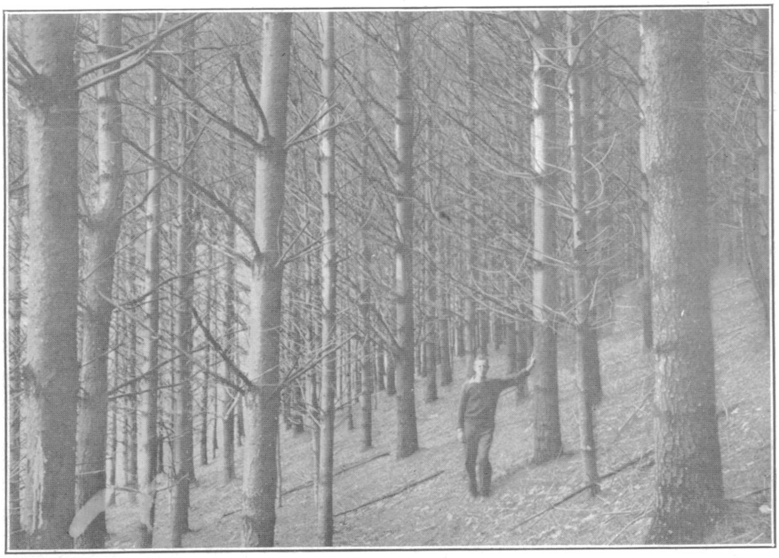
What can the New England farmer do to remedy the present situation? What can he do to increase the quality and yield of products from his woodlot? It would be grossly misleading on my part were I unreservedly to advocate the removal of the present inferior stands and the establishment of artificial stands by planting more useful species. It would be wrong for me unreservedly to advocate the spending of $10 or $15 per acre in an effort to improve the present stands by eliminating undesirable growth through properly arranged thinnings and by seeding and planting the open spaces when the natural growth is too broken for a fully stocked stand. I mean by this that the New England farmer can rely upon no general statement as to what can be done, or what ought to be done in

A MIXED HARDWOOD STAND CUT CLEAR IN 1903–04. The photograph shows the operation of planting in the spring of 1904. Photographed in May. Maltby Lakes, near New Haven, Conn.

WHITE PINES, 60 TO 65 YEARS OLD.

order to improve his woodlot. Each woodlot is a problem in itself. What and how much the owner can profitably do, in order to attain an acceptable reproduction and take care of it afterward, depends upon a large number of variable factors. The New England farmer must be helped, must be guided in the development of the woodlot. In some localities, as in Keene, New Hampshire, the woodlot can very well become the most profitable part of the farm; liberal expenditures can be made in attaining regeneration, in protection and in thinnings, with the certainty of profitable results. The same expenditures made elsewhere, with different species under different soil conditions and with different markets, would as certainly be an economic failure. The farmers in New England must be shown where the woodlots are that will certainly pay if the necessary expenditures are made to grow the right species in fully stocked stands, properly protected and managed. They must be instructed in the most economical methods for attaining fully stocked stands of desired species. They must be protected against unreasonable tax laws and assisted in protecting their woodlots from fire, insects and fungi. Most of all, however, the farmer must be convinced that what he will get out of his woodlot in the future is measured by the intelligent labor that he uses in its regeneration at this time and in its future management. The New England state departments of forestry have a tremendously large task ahead of them. Their strength and power for usefulness are going to be determined very largely by how fully they are able to convince the farmers of the economic advantage of woodlot improvement wherever such is economically possible, and how well they are able to lead them along the right course and keep them from economic mistakes. In this work they should join hands with the agriculturist and cooperate with the county agricultural agents. The woodlot owner must be reached on his own woodlot by some one who knows what the possibilities of the woodlot are.

Although at the present time, due to various adverse conditions, many farmers will find it to their economic disadvantage to place their woodlots under intensive management, others, due to the superior location of their woodlots and their suitability for particular species, will find it very profitable. What the farmer needs is more knowledge of forestry. He should know what he is warranted in undertaking with reasonable assurance of economic success.



WHITE PINES PLANTED ON AN EXHAUSTED FIELD.

Keene valley, in southern New Hampshire, is a broad, level stretch of light sandy soil, originally covered with a dense stand of white pine. It has been settled for more than 200 years, and the virgin forest has completely disappeared. The farmers of this valley have been for many years systematically improving the second-growth white pine in their woodlots. Many of these young, even-aged stands of white pine remind one of well-managed forests in Europe. Two years ago a farmer in this valley sold the stumpage on 22 acres of 60- to 65-year-old white pine for $15,000, or at a price of nearly

$700 per acre. The average value of 60- to 65-year-old mixed stands of hardwoods in the woodlots of New Haven county is approximately $50 per acre. In 1871 a farmer near Keene planted a small, precipitous, exhausted field of less than three acres with white pine which was spaced 8 by 8 feet. The land was valued at $10 per acre. Two years ago this stand of pine was sold for $1,000. If this land had not been planted, in all probability its rough topography and sterile soil would have caused it to remain idle to the present day. A few days' work in the spring of 1871 has created present wealth to the extent of $1,000. All over New England there are woodlots that have very large economic possibilities were they properly developed. It is the duty of the forestry profession, through state and other agencies, to force a renaissance in New England woodlots and lift them from their present deplorable, nonproductive condition into a condition whereby they will yield in greater abundance and help to solve the problem of the best use of New England land.